

Global Outsourcing of IT and IT Enabled Services: Impact on U.S. and Global Economy

Editorial Preface

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Shailendra Palvia
Long Island University

OUTSOURCING EVOLUTION

Outsourcing has become a significant corporate strategy since the 1990s. This is becoming the age of core competence for each enterprise including SMEs. Outsourcing within the boundaries of a country has been there for a long time well known as the “make versus buy decision.” A firm making most of the components in-house needed for finished products is a vertically integrated firm (one extreme). At the other extreme is a niche firm that focuses on its core competence and outsources as many non-core functions as possible.

Outsourcing outside the boundaries of a firm’s country has been significantly enabled by the worldwide Internet platform, digitization, and high speed global data networks – these are the biggest trends reshaping the global economy. Starting late 1970s, the exodus of jobs from USA was for jobs making shoes, cheap electronics, and toys to developing countries. In the late 1980s and early 1990s, software development was being outsourced to off shore countries like India followed by Ireland, Philippines, Taiwan, South Korea, Israel etc. Starting late 1990s, due to Internet bandwidth becoming affordable for transmission of messages containing tables, graphs, images, audio, and video, it has increasingly become feasible to outsource IT Enables Services (also called Business Process Outsourcing) to offshore countries. Offshore outsourcing, does not mean paying lower wages for lower quality work, instead its goal is to get better quality in shorter time at lower cost. According to Information Week (5), offshore outsourcing is a means to an end. The end is reasonably priced new sources of innovation and quality. Towards this end, Dell Computer eschews outsourcing of any kind (on-shore, near-shore, far-shore) and pursues relentless innovation, higher quality, greater customer intimacy, real-time responsiveness – all at reasonable and highly competitive costs.

IMPACT ON U.S. JOBS AND U.S. ECONOMY

US economy is improving for the last few months without improvement in job statistics. What can this unusual situation be attributed to? According to a major article in Business Week (15), “a new round of globalization is sending upscale jobs offshore. They include chip design, engineering, basic research, and even financial analysis.” In year 2002, Bank of America, slashed 3700 of its 25000 technical and back-office jobs – 1/3 rd are headed to India, where

wage rates are 20% of those in USA. In Bangalore, Infosys Technologies Ltd.'s 250 engineers develop IT applications for Bank of America, other staffers process home loans for Greenpoint Mortgage of Novato, California. Also in Bangalore, Wipro Ltd.'s five radiologists interpret 30 CT scans a day for Massachusetts General Hospital. Brokerage firms like Lehman Brothers Inc. and Bear, Stearns & Co. have started using Indian financial analysts for number-crunching work. Hewlett-Packard Co. has 3,300 software engineers in India. On July 28, 2003, Reuters (news service) announce that it will move around 600 jobs from New York and locations in England, Scotland, and Singapore to its operations in India. San Francisco Bay area companies outsourcing offshore (7) include Hewlett Packard, which moved 1200 Compaq customer service jobs from Florida to the existing H-P center in India; Oracle Corp. moved more than 2000 development jobs to India and was is expected to outsource jobs in accounting, payroll, and customer services; Charles Schwab, Bank of America and PeopleSoft have moved work to Russia, India, Israel, Philippines, and Singapore. Small businesses can get hurt if they don't outsource. Pete Bennett, CEO of Authentic Technologies Inc. (7) got an awakening when his bid of \$150,000 on a project as a beaten by a Malaysian competitor, who offered even more services for almost 1/3rd the price of \$53,000. By early 2003, in Silicon Valley alone, employment in the IT sector was down by 20% since early 2001, according to the nonprofit group Joint Venture Silicon Valley. According to Time Magazine (19), in mid-2001, about 120 TCS employees were brought in to help on a platform-conversion project by northern New Jersey Insurance firm, by December, 2002, 70% of the project was shifted to India and nearly all 20 US workers were laid off.

According to Forrester Research, at least 3.3 million white collar jobs and \$136 billion in wages will shift from USA to low-cost countries by 2015. Out of these 3.3 million jobs – almost 50% will be for Office Support, 14% for Computer jobs, 10% for Business Operations, 9% for Management, 7% for Sales, 5% for Architecture, besides small percentages in Life Sciences, Legal etc. Starting in 1997, low-skilled jobs like Call Centers were the first to go to developing countries. Lately, starting 2001-02, high-skilled jobs are also moving abroad. Financial services companies are expected to move more than 500,000 jobs overseas in the next 5 years, with India being the top destination, according to a survey by management consultant A.T. Kearney. Now all kinds of knowledge work can be done almost anywhere in the world. It is not just corporate America that is shipping jobs overseas, state agencies from New Jersey to New Mexico are offshoring IT and call center work. According to Gartner Dataquest, of the \$3.8 billion in IT spending that the states will outsource during 2003, 5% will go offshore and that percentage will double by 2006.

The impact does not have to be just on loss of jobs. It can result in reduction in salaries in the US. According to Business Week (15), senior software engineers were offered up to \$130K in the year 2000, this had dropped to \$100K by the end of 2002. Entry level computer help-desk staffers used to get around \$55K in 200, now this has gone down to \$35K.

According to a study by Nasscom, US companies have saved nearly \$8 billion during the four years of 1999-2002 by outsourcing to India, and the benefits in terms of productivity, competitiveness, and savings are rising (3). Furthermore, the Indian IT industry is expected to contribute \$16.8 billion to the US economy in 2003-04 with the bulk (\$10-11 billion) coming from savings due to outsourcing, according to a Nasscom report. US managers believe they can cut their overall costs 25% to 40% while building a more secure, focused workforce in the US (19). Such a strategy has generally led to rise in stock prices and gain in employee productivity. According to a study by Mckinsey and Co., ITES market is likely to touch \$142

billion in 2009, against the current cost of \$532 billion for these services, the difference of \$390 billion represents the net saving that the US economy can expect from offshore outsourcing. According to The Indian Financial Express (4), Indian IT companies, of which 170 have physical establishments in USA, have contributed the US economy by employing 60,000 people who paid \$810 million in federal and local taxes and nearly \$300 million to social security in 2001. Due to such outsourcing, the US banking, financial services, and insurance sector have emerged globally competitive and their costs lower by 7-10% compared to their European counterparts.

Two opposing views dominate the debate over the impact of global outsourcing on US economy (11). The pessimistic one contends that service jobs, requiring much less infrastructure (desk, computer, and Internet access), will be outsourced more easily than the manufacturing jobs in the 1970s and 80s. To protect US jobs, legislation blocking jobs from moving overseas (much like the 1930s style protectionism) will be necessary. To avoid loss of jobs, there is a need for corporations to constantly train their employees and for educational institutions to revise their curricula faster than in the past. The optimistic view suggests that the world economy should be considered as a ladder with the bottom rungs including the countries that provide mainly textile and other low-tech goods; middle rungs are the nations that manufacture everything from steel to autos to memory chips; and top rung countries include US and other developed countries that make sophisticated electronics, software, and pharmaceuticals. Every country tries to climb to the next rung. So, the next thing for US to do is for US and other top rung countries to innovate and create jobs in high tech (telecom), bio-tech, energy sectors and again lead the world. To aid in this innovation activity are the best developed financial markets including venture-capital and high-yield bond markets in USA.

AN EVOLVING FRAMEWORK FOR OUTSOURCING

According to Business Week (15), Dharin Shah makes \$10,000 a year designing 3rd generation mobile-phone chips with Texas Instruments Inc. research center in Bangalore – he would have been ecstatic to move to Silicon Valley in California 5 years back, but now he says, “sky is the limit here.” Proctor & Gamble’s 650 Manila employees, mostly having business and finance degrees, help prepare P&G’s tax returns around the world. These are examples of US based companies having subsidiaries in developing countries – India and Philippines.

One thousand miles north, in New Delhi, Wipro Spectramind Ltd. employs top notch professionals to process claims for a major US insurance company, provides help desk support for a big US ISP, and its seven staff with Ph.Ds in Molecular biology sift through scientific research for Western pharmaceutical companies. These are examples of client companies in USA outsourcing to Indian MNC Wipro (15). First two are examples of ITES, the last one is an example of R&D happening physically in India.

Corporations are letting foreign operations handle internal finances as well. Wall Street banks and brokerages, in search of independent research for investors, are buying equity analysis reports, industry reports, and summaries of financial disclosures from consultants such as Smart Analyst Inc. and office Tiger that employ financial analysts in India. Architectural work is going global too (15). Fluor Corp. of Alsie Viejo, California employs 1200 engineers and draftsmen in the Philippines, Poland, and India to turn layouts of giant industrial facilities into detailed specs and blueprints. These are examples, where outsourcing vendor companies like

Smart Analyst Inc. and Fluor Corp. themselves outsource offshore to countries like India. IBM, EDS, Perot Systems, CSC all engage in such cost effective business practices.

Vendor companies like IBM, EDS, CSC, Hewlett Packard, Oracle also have their own subsidiaries in offshore countries like India, China, Russia. These are examples of these US based vendor companies themselves taking advantage of offshore facilities to remain globally competitive. The motivation is not to lose business to foreign companies. For example, IBM already has 4700 employees in India and the number is expected to be 10,000 by the end of 2004. This has been called “global delivery model’ by multinationals like IBM and EDS.

Work done by foreign nationals in their own countries electronically for companies based in USA or other advanced countries was termed Electronic Immigration by this author since 1991, whereby professionals in developing countries do not have to immigrate physically to the developed countries to avail of the job opportunities there, but they simply immigrate electronically and avail of the high salaries there. Within the context of a metro area or even a country, this phenomenon of work moving to where professionals are has been termed telecommuting for quite some time. When the work moves back and forth electronically from advanced countries to developing countries, we can call this phenomenon electronic immigration of people or global outsourcing of work. Another aspect of global outsourcing is – when products or services are not in the IT domain or not enabled by IT. These could be manufacturing of goods or analysis of physical reports and documents to take advantage of low cost without sacrificing quality.

The above examples lead us to a nice initial framework to understand the phenomenon of global outsourcing. Exhibit-1 depicts this framework.

Outsourcee Country		Outsourcer Country	
		Client Company	Vendor Company
Foreign Subsidiary	Physical Delivery	√	√
	Electronic Delivery	√	√
Indigenous Company	Physical Delivery	√	√
	Electronic Delivery	√	√

**Exhibit-1
Framework for Offshore Outsourcing Options**

First dimension is – kind of company in the outsourcer country (the country that outsources products or services to offshore countries) like USA or another advanced country; the company can be either a client company (like JP Morgan Chase) or a vendor company itself (like IBM). **Second dimension** is kind of company in the outsourcee country (the country to which any product or service is outsourced to avail of cost-effective solutions) like India or China; the company can either be a foreign subsidiary of the a parent company in advanced

nations or a foreign country headquartered company (like Wipro, Infosys, TCS in India). **Third dimension** is how the work moves between an offshore location and client/partner location in the outsourcer country; does it move electronically or physically? This dimension will be called delivery mode (physical or electronic delivery) referring to back and forth flow of work. Initially, above framework gives rise to 8 possibilities for global outsourcing as represented by the 8 boxes with check marks. However, there are four more possibilities representing outsourcing happening within the Outsourcer or Outsourcee country involving physical or electronic delivery. Examples for the first 8 possibilities have already been given above. For remaining four, examples are obvious. Buy decision for raw material or components within the context of a country means outsourcing in a country (outsourcer or outsourcee) with a physical delivery model. Similar two options exist for electronic delivery.

PLAYERS (COUNTRIES) IN THE OUTSOURCING WORLD

So far, India is the prime destination for ITO and BPO from USA, western Europe and Japan. Major centers within India are Mumbai, Bangalore, Delhi, Hyderabad, Chennai etc. Several other countries are joining the fray. These include China, Philippines, Czechoslovakia, Costa Rica, Bulgaria, Romania, South Africa, Ghana etc.

As summarized in Business Week (15), **India** is the world hub for IT services, chip design, call centers, and business back-office work that already generates \$10 billion in exports and is expected to hit \$57 billion by 2008. Indian providers like Tata Consulting Services (TCS), Infosys, Wipro, Satyam, HCL-Perot, and Patni computers are fast becoming global leaders. WIPRO's CEO Azim Premji is amongst Fortune Magazine's 2002 list of 25 (ranked 17th) most powerful business leaders outside of the US. India is now turning its attention to improving infrastructure in order to develop ITeS sector in destinations beyond the metros to rural communities (16). Below is a graph that captures relative attractiveness of a country based on Cost and Quality considerations.

In Southeast Asia, because of their cost advantage, new entrants like Philippines and China are now giving tough competition to early beneficiary countries like India. **China** is becoming a key product-development center for GE, Intel, Philips, Microsoft, and other electronics giants. Strengths are hardware design and embedded software. Call centers for Japan and South Korea are growing in coastal cities of China. So far, China's role is largely focused on providing back office support for financial services, telecom. Software, and retail companies for companies in neighboring Asia (19). Gartner Inc. predicts that by 2007, China will pull in \$27 billion for IT services, including call centers and back-office work, matching India. BearingPoint pays \$500 per month for an engineer in Shanghai compared to \$700 in India and \$4000 in USA. There is another global alliance taking place – Garner predicts that Indian firms will eventually control 40% of China's IT services export (6). **Philippines** has more than 8000 foreign companies source work in 9 different IT parks with fiber-optics links. Strengths include huge supply of English-speaking. College educated accountants, software writers, architects, telemarketers, and graphic artists.

In **Russia**, some 100 local software service exporters employ up to 10000 engineers specializing in complex projects. RusSoft, an association that represents software-development companies with presence in Russia and Belarus, has 50 member companies employing some 6,000 developers (12), with member organizations' exports totaling \$150 million in 2002. While many of RusSoft's members are tiny companies, there are well known

large companies like Epam (employing 500 programmers in Moscow and Minsk (Belarus) with clients list including Colgate-Palmolive, Compaq, Ford, CAreFirst of BlueCross BlueShield) and Exigen (has about 900 programmers in Eastern Europe with plans to hire another 2000 in 2003-04 and boasts of clients such as Prudential Financial), and LuxSoft which has done work for Boeing, Citibank, Dell Computer, and IBM. Boeing, Nortel, Motorola, and Intel have small R&D centers in Russia.

In the America region, **Mexico** is becoming a favorite IT and engineering outsourcing haven for US companies that want to keep work close to home (near shore outsourcing). **Costa Rica (San Jose)** has cheap telecom costs and an educated workforce, making it a thriving spot for call centers targeting Spanish-speaking consumers in the US and Europe. Accenture has IT support and bookkeeping operations in Costa Rica.

Other regions include South Africa and Eastern Europe. **South Africa** can boast of well educated speakers of French, English, and German from all over Africa staff growing call centers catering primarily to European countries. **Eastern Europe** is attracting Indian and American IT service providers to open offices in countries like Hungary, Poland, Czech Republic to tap abundant German and English speaking workforce for European clients.

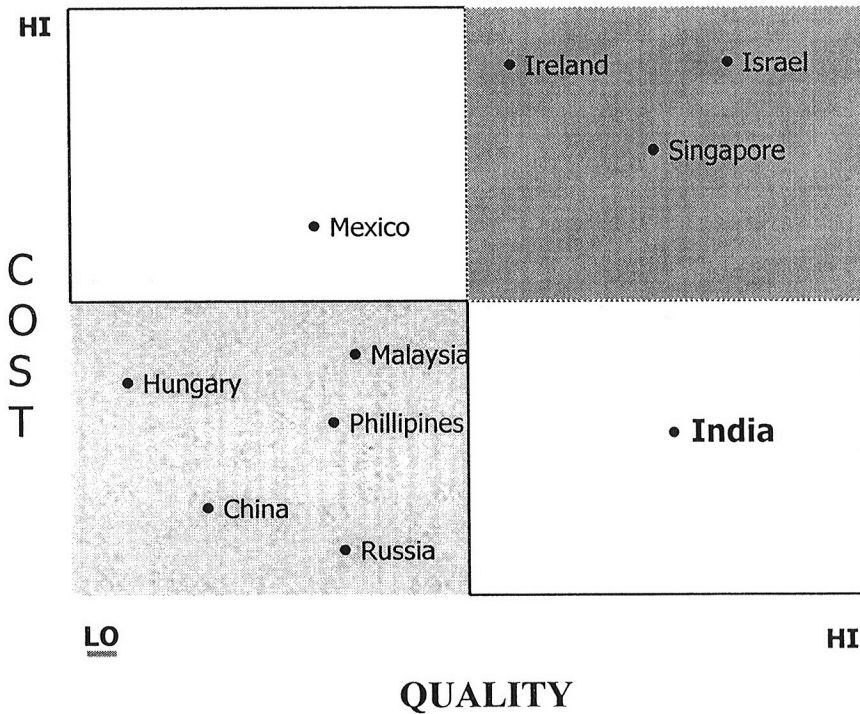


Exhibit-2
Country Attractiveness Based on Cost and Quality
 (© 2001 Jupiter Media Metrix, Inc.)

According to a report prepared by global management consulting firm, AT Kearney, India ranks highest in an index of country attractiveness for offshore outsourcing of IT among 11 countries (1). India gets 7.3 marks (out of 10) with 3.4 in cost (out of 4), 1.6 in environment

(out of 3), and 2.3 in people (out of 3). Canada is #2 with a total of 6.2 marks. Philippines, Ireland, Australia, and China have been respectively ranked as 5, 7, 8 and 11. Remaining six countries that were ranked are: Brazil, Mexico, Hungary, Cze Republic, and Russia.

EMPLOYEE BACKLASH AND POLITICAL FALLOUT

Around 1991, at the dawn of collapse of the Soviet Union, Boeing started recruiting out-of-work Russian aerospace engineers, who worked for as little as \$5400 a year. This trend culminated in the opening of a Moscow Design Center, which grew to 700 engineers in 2002. In December, 2002, Boeing's 22,000 engineers in Seattle represented by the Society of Professional Engineering Employees in Aerospace (SPEEA) threatened to walk out (Boeing laid off 5000 engineers since 2001). This threat resulted in Boeing reducing its Moscow staff to 350 engineers only.

Under lobbying from the industry, Congress in the 1990s raised the annual limit to 195,000 foreign technology workers (people with specialist skills) to enter the US on H-1B visas. This number is likely to go down to the original number of 65,000 in the year 2004.

According to Information Week (14), in the wake of the reports that IBM may move thousands of programming and support jobs to overseas (primarily India), IBM faces an employee backlash that may lead to the formation of a union of its IT workforce. For IBM, it is inevitable, since its competitors EDS and Hewlett-Packard (based in Texas – where unions are relatively weak) are outsourcing offshore for some time. In a political fallout, Representative Jay Inslee, D-Washington, has asked the General Accounting Office (GAO) to study offshore outsourcing and its effect on the U.S. economy.

H1B visa program allows companies to bring in skilled foreign workers. Beginning October 1, 2003, the H-1B visa cap will decrease to 65,000 from the current level of 195,000 (numerical cap). Also alarming is HR 2688 introduced by Thomas Tancredo, a Republican from Colorado which seeks to eliminate the H-1B program.

While the H1B visa is filed for individuals, companies can file L1 petitions on behalf of dozens of workers at once. In May, 2003, legislation was introduced in the US Congress to restrict foreign companies' ability to transfer workers to their subsidiaries in the US. The transfers are said to violate the terms of L-1 visas which are supposed to be used in a limited way for intra-company transfers. Unlike H1B visa, L-1 does not have a numerical cap. Of the 32,416 L-1 visas given in the first 6 months of 2003, 10,000 were given to Indian companies. Several bills have been introduced: HR 2154 by Republican Congressman from Florida, John Mica that would prevent companies from outsourcing L-1 visa employees to client companies; L-1 Nonimmigrant Reform Act HR 2702 by Rosa DeLauro, a Connecticut Democrat, to reduce the number of L visas to 35000.

At least 6 states are considering legislation (New Jersey, Connecticut, Maryland, Washington, Missouri) to stop the use of foreign labor for state contracts. "State governments should not be exporting jobs when we have skyrocketing unemployment," says Shirley Turner, a Democratic state senator in New Jersey. New Jersey state's agency (eFunds Corp. of Arizona) reversed outsourcing of its Customer Service Center operations (originally based in Green Bay, Wisconsin and employing nine people) from Mumbai to Camden, New Jersey, with costs going up 30% from \$266,000 a year to \$340,000 a year, serving 155,000 food recipients and

45,000 welfare clients at an increased cost of 36.9 cents per month (8). Lawmakers are also concerned about the erosion of states' tax base due to outsourcing – out of state or out of country. However, according to US congressman Jay Inslee, protectionist efforts like John Mica's bill (limiting outsourcing and L-1 visas, introduced on May 19, 2003 by US Senator John L Mica) are considered by many in the US political establishment as impediments to trade (2). According to opponents of such legislations, blocking foreign employees from working on state contracts would violate WTO's laws, aimed at opening global markets and creating new markets for US exports.

IMPLICATIONS FOR EDUCATIONAL INSTITUTIONS

For companies adept at managing a global workforce, the benefits of outsourcing can be phenomenal. In the early 1990s, for companies like American Express, Dell, Eastman Kodak, TI, IBM, Intel, Microsoft, immigrant Asian engineers in their labs played a pivotal role in technological breakthroughs. The difference now is that Indian and Chinese engineers are managing R&D teams in their home countries. GE, for example, employs 6000 scientists and engineers in 10 foreign countries like India, China, Israel, Hungary, France.

The above scenario of US MNCs opening subsidiaries in foreign countries has significant implications for corporate training programs and the curricula in secondary and tertiary educational institutions in USA. The same implications apply even when an outsourcer company (client company) in USA has to deal with an Indian company, say Wipro or Infosys. According to Zareen Karani Araoz, training needs to be done in person, by people who know and understand the partner's culture, as well as the process of cultural change in individuals (20).

Importance of education is emphasized in Business Week (18). The careers studied for in College, in the context of burgeoning global outsourcing, will not sustain a US employee for the working life. He/she will have to retrain and reeducate two or three times over 40-50 years career span. The U.S. still has the best educated workforce among the major economies – 30% of Americans aged 25-34 have a college degree, compared with 24% for Japan, and 14% for Germany. College graduates in comparison to adults with some college or high school diploma or less than high school education still do the best in terms of long term employment and employability.

The curricula and the faculty will have to be reengineered at a fast pace. The curricula must include courses on world geography, world history, world cultures, with a clear focus on major outsourcing countries of the world – India, China, Russia, Philippines etc.

CERTIFICATIONS FOR ITO AND BPO

According to information available on www.nasscom.org, ISO 9000 certifications started in a big way in India since 1993 (first stage) with all major outsourcing vendors getting these certificates of commitment to quality. The quality of a software can be defined as “the extent to which the product satisfies its specifications,” (17). The second stage started using include SEI's (Software Engineering Institute at Carnegie Mellon University (CMU)) CMM (Capability Maturity Model) levels, starting at 1 (lowest) to 5 representing the best software development practices. India now has far more SEI CMM Level 5 companies than any other country in the world. The third stage was driven by the desire to institute processes, metrics

and a framework for improvement in all areas including those relating to sales, billing and collection, people management and after sales support. This was characterized by companies aligning their internal practices with the People CMM framework and by the use of the Six Sigma methodology for reducing variation and assuring “end-to-end” quality in all company operations.

SEI Quality Assessment	No. of Companies as on 31 Dec. 2002
SEI CMMI	2
SEI CMM Level 5	48
SEI CMM Level 4	23
SEI CMM Level 3	22
SEI CMM Level 2	1
PCMM Level 5	5
PCMM Level 4	1
PCMM Level 3	5
PCMM Level 2	3

Exhibit-3

Status of Indian Companies on Capability Maturity Model Levels

In the ITeS or BPO space also, the importance of quality certifications is fast emerging. Primary certifications on the horizon are British certification BS-7799 and COPC from Purdue University. Several companies in India are scrambling for such certifications (10).

IMPACT ON U.S. AND GLOBAL ECONOMY: THE EGALITARIAN VIEW

If the world of ours is to work cohesively to exploit talent wherever it exists, then the trend of global outsourcing is irreversible. As economic, political, and technological forces continue to shape a more truly global economy, outsourcing of any kind, will become the norm, rather than exception (5). According to National Science Foundation, China, India and USA had respectively 322,000, 251,000, and 220,000 graduates from undergraduate programs in 1999. The comparison changes when we look at graduates from graduate programs (Masters and PhDs): 77,000 from USA, 63,000 from India, and 41,000 from China. And whether, you choose to achieve high quality at lower cost in shorter time in the United States, or in India or China, or Ireland or Israel, it should be a source of pride and not shame for companies (5).

What happens if the displaced white-collar workers cannot find reasonable jobs within reasonable time. Will it lead to a new round of training and retraining – as it is happening now for the professions of school teachers and nurses. Could the globalization movement be reversed? Would nations again erect walls around their borders and put restrictions on flow of goods, capital, and people? Creating barriers to the flow of intellectual capacity is not in the interest of the US economy. As long as there is the potential of 300 million middle class people in India buying US products, cutting down the means to their economic prosperity can be counter-productive. The outsourcing phenomenon certainly abodes well for the developing countries with educated workforce. By 2008 in India, according to a joint study by McKinsey & Co. and Nasscom (Indian National Association of Software and Service Companies), IT work and other service exports will generate \$57 billion in revenues, employ 4 million people, and account for 7% of national GDP.

The basic cause of all tensions and conflicts in the world can be traced to the significant disparities in incomes that exist within nations and among nations. Generally speaking, the rich people do not fight with other rich people and the poor do not fight with poor. The well known North-South divide has been debated ad infinitum in world forums including the United Nations. Going by the three waves of civilization as articulated by Alvin Toffler -- in the agricultural era, there were almost no flows of goods across nations. In the industrial era, the concept of sharing goods and capital across nations took hold. Still the disparity in incomes continued. The remaining impediment to world citizens for sharing the resources of the world equitably was free flows of labor (or jobs) across national borders. People moving and immigrating freely (temporarily or permanently) to where the jobs are, would pose several problems including resentment and active resistance by people whose jobs are being taken away.

The rise of a globally integrated knowledge economy is a blessing for developing nations (15). According to Business Week (18), companies will always pursue the lowest-cost structure...and that's a good thing, because living standards around the world will rise. According to the same article, the global economy will do much better, but the U.S. workforce may face frequent career changes and downward pressure on wages, because of worldwide competition.

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Shailendra C. Jain Palvia is Professor and Director of Management Information Systems at the Long Island University, New York (USA). He received his Ph.D. from the University of Minnesota. His research publications are in the areas of management of the systems development process, mode of use in problem solving, implementation issues for MIS/DSS, global information technology, software training methods, global electronic commerce, and global IT outsourcing. His work has been published in refereed journals such as Communications of the ACM, MIS Quarterly, Information & Management, Journal of Global Information Management, JITCA, International Information Systems, Industrial Management and Data Systems, Journal of Computer Information Systems, and Journal of Information Systems Education. He is the co-editor of three books: The Global Issues of IT Management published in 1992; Global IT and Systems Management published in 1996; and Global IT and Global e-Commerce published in 2002. Dr. Palvia is Editor-in-chief of the Journal of Information Technology Cases and Applications (JITCA) since 1999 and an Associate Editor of the Journal of Global Information Technology Management (JGITM) since 1998. He chaired the first and second international outsourcing (ITO and BPO) conferences held in Atlanta, GA and New York, NY. He has been an invited speaker to Boston (USA), Stuttgart (Germany), Singapore, Mumbai (India), Bangalore (India), Anand (India), Napoli (Italy), and St. Petersburg (Russia). He can be reached at spalvia@liu.edu.